

401 KAR 59:020. New incinerators.

RELATES TO: KRS Chapter 224

STATUTORY AUTHORITY: KRS 224.10-100

NECESSITY, FUNCTION, AND CONFORMITY: KRS 224.10-100 requires the Environmental and Public Protection Cabinet to prescribe administrative regulations for the prevention, abatement, and control of air pollution. This administrative regulation is to provide standards of performance for new incinerators.

Section 1. Applicability. The provisions of this administrative regulation shall apply to each affected facility which means each incinerator commenced on or after the applicable classification date defined below.

Section 2. Definitions. As used in this administrative regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Incinerator" means any furnace used in the process of burning waste for the purpose of reducing the volume of the waste by removing combustible matter.

(2) "Day" means twenty-four (24) hours.

(3) "Auxiliary fuel" means a substance burned in an incinerator to supply additional heat to attain temperature sufficiently high to dry and ignite waste material and to maintain ignition of the waste material.

(4) "Classification date" means:

(a) August 17, 1971 for incinerators with a charging rate of more than fifty (50) tons/day;

(b) April 9, 1972 for incinerators with a charging rate of fifty (50) tons/day or less, subject to Section 3(2)(b) of this administrative regulation; and

(c) June 6, 1979 for incinerators with a charging rate of fifty (50) tons/day or less subject to Section 3(2)(a) of this administrative regulation.

Section 3. Standards for Particulate Matter. (1) No owner or operator of any affected facility shall cause, suffer, allow, or permit the emission produced by the incineration of any substance to have greater than twenty (20) percent opacity.

(2)(a) No owner or operator of an affected facility of 500 lb/hr up to and including forty-five (45) metric tons per day charging rate (fifty (50) tons/day) commenced on or after June 6, 1979 shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.23 g/dscm (one-tenth (0.1) gr/dscf) corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

(b) No owner or operator of an affected facility of 500 lb/hr up to and including forty-five (45) metric tons per day charging rate (fifty (50) tons/day) commenced on or after April 9, 1972 but before June 6, 1979 shall cause to be discharged into the atmosphere from any affected facility any gases with contain particulate matter in excess of 0.45 g/dscm (two-tenths (0.2) gr/dscf) corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

(3) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator of an affected facility of more than forty-five (45) metric tons per day charging rate (fifty (50) tons/day) shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.18 g/dscm (0.08 gr/dscf) corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

Section 4. Monitoring of Operations. The owner or operator of an affected facility of more than

forty-five (45) metric tons per day charging rate (fifty (50) tons per day) shall record the daily charging rates and hours of operation.

Section 5. Nameplate. All affected facilities shall have a nameplate installed in a conspicuous place on the unit giving the manufacturer's name, model number, rated capacity, and the types of waste material for which the unit is designed.

Section 6. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 of this administrative regulation as follows:

- (a) Reference Method 5 for the concentration of particulate matter and the associated moisture content;
- (b) Reference Method 1 for sample and velocity traverses;
- (c) Reference Method 2 for velocity and volumetric flow rate;
- (d) Reference Method 3 for gas analysis and calculation of excess air, using the integrated sample technique; and
- (e) Reference Method 9 for visible emissions.

(2) The sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 0.85 dscm (thirty (30.0) dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the cabinet.

(3) If a wet scrubber is used, the gas analysis sample shall reflect flue gas conditions after the scrubber, allowing for carbon dioxide absorption by sampling the gas on the scrubber inlet and outlet sides according to either the procedure under paragraphs (a) through (f) of this subsection or the procedure under Section 7 of this administrative regulation.

(a) The inlet site shall be selected according to Reference Method 1 or as specified by the cabinet.

(b) The outlet sampling site shall be the same as for the particulate matter measurement.

(c) Randomly select nine (9) sampling points within the cross section at both the inlet and outlet sampling sites. Use the first set of three (3) for the first run, the second set for the second run, and the third set for the third run.

(d) Simultaneously with each particulate matter run, extract and analyze for carbon dioxide an integrated gas sample traversing the three (3) sample points and sampling at each point for equal increments of time. Conduct the runs at both inlet and outlet sampling sites.

(e) Measure the volumetric flow rate at the inlet during each particulate matter run using the full number of traverse points. For the inlet make two (2) full velocity traverses approximately one (1) hour apart during each run and average the results. The outlet volumetric flow rate may be determined from the particulate matter run.

(f) Calculate the adjusted carbon dioxide percentage using the equation in Appendix A of this administrative regulation.

Section 7. Alternatively, the following procedures may be substituted for the procedures under Section 6(3)(d), (e) and (f) of this administrative regulation.

(1) Simultaneously with each particulate matter run, extract and analyze for carbon dioxide, oxygen, and nitrogen an integrated gas sample traversing the three (3) sample points and sampling for equal increments of time at each point. Conduct the runs at both the inlet and outlet sampling sites.

(2) After completing the analysis of the gas sample, calculate the percentage of excess air for both the inlet and outlet sampling sites.

(3) Calculate the adjusted carbon dioxide percentage using the equation in Appendix B of this

administrative regulation.

(4) Particulate matter emissions, expressed in g/dscm, shall be corrected to twelve (12) percent carbon dioxide by using the formula in Appendix C of this administrative regulation.

Section 8. Appendix A. Calculation for Adjusted Carbon Dioxide Percentage for Incinerators.

CALCULATION FOR ADJUSTED CARBON
DIOXIDE

PERCENTAGE FOR INCINERATORS

$$\%CO_2A = \% CO_2D (Q_i/Q_o)$$

where:

$\%CO_2A$ is the adjusted carbon dioxide percentage which removes the effect of carbon dioxide absorption and dilution air.

$\%CO_2D$ is the percentage of carbon dioxide measured before the scrubber, dry basis.

Q_i is the volumetric flow rate before the scrubber average of two (2) runs, dscf/min, and

Q_o is the volumetric flow rate after the scrubber, dscf/min.

Section 9. Appendix B. Calculation for Adjusted Carbon Dioxide Percentage Incinerator, Alternate Procedure.

CALCULATION FOR ADJUSTED CARBON
DIOXIDE

PERCENTAGE INCINERATOR,
ALTERNATE PROCEDURE

$$\%CO_2A = \frac{\%CO_2D100 + \%EA_i}{100 + \%EA_o}$$

where:

$\%CO_2A$ is the adjusted outlet carbon dioxide percentage,

$\%CO_2D$ is the percentage of carbon dioxide measured before the scrubber, dry basis,

$\%EA_i$ is the percentage of excess air at the inlet, and

$\%EA_o$ is the percentage of excess air at the outlet.

Section 10. Appendix C. Particulate Emissions Correction Calculation for Incinerators, Alternate Procedure.

PARTICULATE EMISSIONS CORREC-
TION

CALCULATION FOR INCINERATORS,
ALTERNATE PROCEDURE

$$C_{12} = \frac{12C_p}{\%CO_2}$$

where:

C_{12} is the concentration of particulate matter corrected to twelve (12) percent carbon dioxide,

C_p is the concentration of particulate matter and,

$\%CO_2$ is the percentage of measured carbon dioxide or when applicable, the adjusted outlet carbon dioxide percentage as determined by Appendix B to this administrative regulation.

(5 Ky.R. 410; 1028; eff. 6-6-1979; 7 Ky.R. 232; 470; eff. 1-7-1981; TAm eff. 8-9-2007; Crt eff. 11-21-2018; TAm eff. 9-4-2019.)